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**Nextgov**

# EMERGING TECH TRENDS

WHAT'S NEXT IN FEDERAL TECHNOLOGY?

# Introduction

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Emerging technologies like smart cars, artificial intelligence and connected devices aren't the stuff of science fiction: They're here today and squarely on the radar of the federal government.

Agencies both use these technologies and are responsible for coming up with policies to regulate them. At *Nextgov*, we've been covering these issues with an eye for how these new technologies and the programs they exist in will affect users and citizens. For example, as bullish as many in Congress are for self-driving cars, a recent House hearing revealed lawmakers still can't shake safety concerns.

AI, too, is tossed around as an enabling technology of the future, and many consumers are already familiar with products like Amazon's Alexa. While a consortium of agencies is looking to capitalize on AI to better connect citizens to government services, AI could eliminate a slew of jobs now occupied by humans.

This ebook discusses these topics and others relating to the government's increased use of emerging technologies.

**Frank Konkkel**  
Senior Editor, Technology & Events

# Alexa, Can You Tell Me About GSA's Virtual Assistant Pilot?

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## Virtual assistants and chatbots might be answering citizens' questions soon.

By Mohana Ravindranath

In the future, citizens seeking government services might not flock to websites. Instead, they might ask their Amazon Alexa, Apple's Siri or a text-based chatbot for help.

At least, that's the plan, per a new pilot program at the General Services Administration.

In March, GSA launched a pilot that would walk federal agencies through the process of setting up virtual assistants, powered by machine-learning and artificial intelligence technology, which can eventually be deployed to citizens.

The goal isn't just to produce more "intelligent personal assistants," or IPAs, GSA's Emerging Citizen Technology Office lead Justin Herman told *Nextgov*. It's also to build out a structure internally, complete with toolkits and guides, so agencies can decide for themselves whether this technology is worthwhile, he explained.

"The easiest part of this is actually building them," Herman added.


The program may discuss building services on platforms such as Alexa, Microsoft's Cortana, the Google Assistant and Facebook's chatbot messenger.

But it's "not just putting these services into a chatbot," Herman said. "We're having workshops focusing specifically on, 'What are the business cases? What are those problems government agencies have, that aren't being met, that just so happen that could be met through machine learning and AI?'"

They're also learning how federal data can be presented so it's accessible to those virtual assistants, he added.

GSA plans to run the pilot over the next month to be able to give agencies the policy, accessibility, security and privacy guidance they need to build a virtual assistant. Eventually, GSA could hand those findings to tech companies so they could better support agencies building IPAs on their platforms.

The pilot's first phase covers making read-only public data available to citizens agencies are considering future phases that are increasingly complex, Herman explained.

GSA's Emerging Citizen Technology Office is also working on similar programs related to virtual reality and augmented reality, Herman said. 

# HHS Wants More Blockchain In Health Records—Eventually

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## The technology could be used in various ways to protect and share health records.

By Mohana Ravindranath

**T**he Health and Human Services Department is tentatively looking into ways blockchain technology—the same system that lets people trade bitcoins—could be used in health care.

Blockchain is a decentralized digital ledger that records virtual transactions that can't be changed after the fact. No one controls the records and anyone on the network can review the ledger's history. With bitcoin, such ledgers track the movements of virtual currency. In health care, they could be used to mark a patient's interactions with various health care providers, giving providers a complete view of a patient's care.

HHS' Office of the National Coordinator for Health IT and blockchain advocacy group Chamber of Digital Commerce recently co-hosted a "code-a-thon," inviting developers to build blockchain-based products for health care. The event doled out \$15,000 in prizes.

Chris Hafey, chief technology officer at NucleusHealth, a medical image management technology company, took

second place at the event. He is working on a system that lets hospitals share medical images with other health care providers, for example, when a rural primary care physician might refer patients to a specialist in the city, requiring them to transfer X-rays.

The blockchain-based system could allow those disparate groups to share medical images with each other instead of forcing patients to undergo screenings every time they're referred to new hospitals, he explained. The company plans to launch a similar product this year.

Developer Tom Nguyen presented an app called Health Passport, which won first place. The consumer-facing prototype would let patients send their medical records to providers without worrying about setting up a complex authentication process as long as the providers had a cryptographic key, he explained.

The event was designed to "expand everyone's thinking about blockchain-based applications in health care," Steve Posnack, ONC's director of the Office of Standards and Technology, said in a statement.

Despite blockchain's promise, "most would agree that it is still too early to clearly determine how it will impact health record systems," an ONC spokesperson told *Nextgov*. "ONC is keeping a close eye on the developments in this area and is looking for signs of adoption and acceptance of the technology in the marketplace." ■



**Point:** 75% of government leaders are intent on becoming digital organizations

**Point:** 50% identify “embracing new and agile IT delivery models” as a top focus area

**Point:** 55% say legacy systems and cumbersome processes are obstacles to going digital


## **Counterpoint:** CGI

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# DHS Silicon Valley Program Funds 5 Internet of Things Security Projects

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## A handful of startups will develop pilot-ready prototypes.

By Mohana Ravindranath

**T**he Homeland Security Department's Silicon Valley Innovation Program, established under Barack Obama, is still connecting with commercial companies under President Donald Trump.


This week, DHS' Science and Technology Directorate awarded a total of about \$1 million to five startups specializing in securing the internet of things, a term for a connected network of devices and sensors.

That's the mission of the program: to tap into the private-sector tech industry and re-purpose cutting-edge commercial products into solutions for the government. The Pentagon has a similar office in the Silicon Valley area.

DHS' awards comprise Phase 2 of its search for technology that can protect the internet of things from outside intruders; the contracts are issued under its Other Transaction Authority,

which allows the department to engage with nontraditional contractors and at a pace much quicker than regular contracts.

The winning companies had already submitted proofs of concept during Phase 1 of the program; this next phase requires them to create pilot-ready prototypes.

The businesses include Factom, which uses blockchain to prevent device spoofing; Ionic Security, whose technology intends to help authenticate devices; Machine-to-Machine Intelligence Corp., which is trying to create an open-source cryptographic protocol; Pulzze Systems, which detects when devices connect to or leave a network; and Whitescope, which builds a wireless communication system for devices. 

**\$1 MILLION+**  
was awarded to five startups  
specializing in securing the  
internet of things

# This is the Job-Killer the Trump Team Should Worry About, Obama Adviser Says

 [monsitj/istock.com](https://www.istock.com/monsitj/)

## Ex-Obama tech policy adviser shares her insight.

By Mohana Ravindranath

*Artificial intelligence is poised to make instances of human labor obsolete, and it's not yet clear what governments can do to protect the people who will lose their jobs.*

*As Barack Obama's presidential term wound down in December, his tech team published a report urging the incoming administration to take "aggressive policy action" to "help Americans who are disadvantaged by these changes" and also to make sure "the enormous benefits of AI and automation are developed by and available to all."*

*But it's not yet clear that President Donald Trump's White House is taking the hint, according to Terah Lyons, former technology policy adviser within the Office of Science and Technology Policy. Lyons, who co-authored the report, chatted with Nextgov in advance of our artificial intelligence-themed Tech + Tequila meetup.*

*This conversation has been edited for length and clarity.*

**Nextgov:** I was surprised to see such an overt policy recommendation from the Obama White House to the incoming administration, urging them to protect the people whose jobs may be made obsolete by artificial intelligence. Was that your intent?

**Terah Lyons:** We ended up developing the second AI report in the waning days of the Obama administration ... [part of] the administration's efforts around public outreach and stakeholder conversations around this issues.

That sort of public outreach process culminated in the writing of the first AI report, which was an interagency effort. From that process, we realized we needed more concerted thinking around the specific issue of AI-based automation and its impact on the economy, its impact on labor.

The purpose really was to sort of provide a slate of opportunities and challenges, and also policy recommendations, associated with those issue areas for this incoming administration. The timing of the report really indicated that. It was very much intended ... to be a sort of layup to this incoming administration and to provide them with the context, and a policy environment, in which to have some of those conversations.



**Nextgov: Are other countries more advanced in this area? What have other governments decided is their responsibility to protect citizens who lose their jobs to automation or artificial intelligence?**

**Lyons:** Certainly, the opinion we held in the last admin is this is an important question for policymakers to consider. This needs to be a discussion that is multidisciplinary and brings together experts from many different spectrums, including in economic policy, tech policy, people from industry and academia, and even those who might be affected by this new wave of technology.

From a solution setting perspective, this is a nascent area of policymaking. What we haven't seen yet are large-scale dramatic impacts, and it's not to say those aren't coming. ... There's a global conversation that has been percolating.

There have some policy experiments, especially in Northern Europe. Finland just started an experiment with some sort of universal basic income policy. A lot of these macroeconomic theories haven't been tested out in practice yet, and sort of need to be piloted in certain ways before they're implemented at a broad scale.

Something that might work for Finland very well, it's possible the same experiment applied to the U.S. could in fact not [pan] out very positively because we have a federated system, we have more diverse demographics.

**Nextgov: Do you think the incoming administration is making this a priority?**

**Lyons:** I don't necessarily think it's clear that science and technology policy in general, or even economic policy issues, are a priority given that they have not appointed a director for the Office of Science and Technology Policy, given that they haven't appointed a chief technology officer for the

United States ... [or] a chair for the president's Council of Economic advisers.

Until they get leadership and some technical and economic talent in the White House, it's not clear to me that this issue is a priority for them at all.

**Nextgov: Are there ways the private sector can step up if the White House doesn't make it a priority?**

**Lyons:** There are mechanisms we have seen. Some of those include institutional arrangements where companies really take it upon themselves to up-skill, or retrain workers, within their own workforces, to make sure they have a workforce that's prepared to take on the jobs they're creating for them.

A lot of questions have been ... around how we pay more attention to more of the country on a more consistent basis. ... Really thinking critically about how they might be impacted by automation is going to be important. That's a job the academic community can contribute to, as well as the private sector.

**Nextgov: What's the sentiment at CompTIA? Are your members preparing for an uptick in business under the Trump administration?**

**Lyons:** They're hoping that there is a big infrastructure stimulus package ... where technology is embedded into our nation's infrastructure. Not just transportation—bridges, airports, roads; it's also water, public utilities.

I've started ... an effort on Capitol Hill to bring back the Office of Technology Assessment. Back in the day, it had 140 employees, a budget line item of \$20 million. We're working to bring the office back to be laser-focused on two specific areas: cyber and new emerging technology. ■

# Lawmakers Want Self-Driving Cars To Thrive But Still Fear Hacks

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## Manufacturers still face concerns that cars could be hijacked.

By Mohana Ravindranath

In a House hearing in February, lawmakers extolled the many potential benefits of self-driving cars, including fewer traffic deaths and transportation options for the blind, elderly or disabled.

It was the first meeting of the House Energy and Commerce Subcommittee on Digital Commerce and Consumer Protection, during which lawmakers probed witnesses from auto manufacturers about how realistic—and how far off—a network of autonomous vehicles might be. They also attempted to strike a balance between advocating for heavier regulation of the industry to protect both the physical safety and privacy of passengers and allowing autonomous vehicles to flourish uninhibited.

"We should never let an unsafe or unproven vehicle hit the road," Rep. Debbie Dingell, D-Mich., said.

The vision of widespread self-driving cars might not be realized without Congressional help. The Senate Commerce, Science and Transportation Committee Chair John Thune,

R-S.D., and Sen. Gary Peters, D-Mich., announced plans Tuesday to eventually introduce legislation that promoting the autonomous vehicle industry.

Today's federal safety standards involve concepts such as the "placement of driver controls" that "assume a human operator," they wrote in a statement. "While these requirements make sense in today's conventional vehicles, they could inhibit innovation or create hazards for self-driving vehicles." They also plan to examine the "existing patchwork of laws and regulations and the traditional roles of federal and state regulators."

The bill they plan to introduce would join another bill, the Security and Privacy In Your Car Study Act, or SPY Car Act, re-introduced in the House in January, that would require the National Highway Traffic Safety Administration to study cybersecurity standards for cars, including autonomous ones.

During the House hearing, witness Nidhi Kaira, a senior scientist at RAND Corporation, noted that hacking is a "very real threat. ... It's not only hacking for fun and profit but autonomous vehicles provide an avenue for terrorism."

"The threat is no longer suicide bombers ... now we have vehicles that can drive around," she added.

It's a topic that has irked lawmakers for years: In a 2015 House Oversight hearing on autonomous vehicles, members cited a report from Wired that described how researchers were easily able to take control of the author's car.



Eric Risberg/AP File Photo

Witnesses told lawmakers that it'll be years before they test and deploy fully autonomous cars.

"We don't have a specific date for when we're going to remove the driver from the car," Toyota Research Institute Chief Executive Officer Gill Pratt testified. He said the company plans to test models until it makes sense to remove the driver. Volvo plans to deploy and test them by 2021, its Vice President of Government Affairs Anders Karrberg said. Volvo also plans to analyze hundreds of thousands of crash case studies and use simulations to prepare the cars for as many accident scenarios as possible.

And there some etiquette issues that need to be explored, Rep. Gregg Harper, R-Miss., suggested. "Let's say you got your driver out of the self-driving car ... I'm driving along and I come across it, and I honk my horn. Will it do any good?"

"We haven't reached that point of deciding how and whether it would be appropriate for vehicles to react, and in what way, to honking a horn," Mike Abelson, General Motors' vice president for global strategy, said. [\[1\]](#)

# About the Author

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## **Mohana Ravindranath**

Mohana Ravindranath covers civilian agency technology and IT policy for *Nextgov*. She previously covered IT for *The Washington Post*, and her work has also appeared in *Business Insider* and *The Philadelphia Inquirer*. She is a graduate of the University of Pennsylvania.